

# Progress Report

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## SD1304: Motorized Vehicles

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## Overview:

The main goal of our project is to design the control board, driver board, and associated hardware. Our client is the mechanical engineering department professor Dr. Selekwa. The technology we will be developing for him will be used in his students current senior design projects: the autonomous snowplow and the standing wheelchair. The goal is to also make a product that can be used by other mechanical engineering groups in the future for their projects.

## Current Status:

The main focus of our project has been centered on the two current projects that we're working in parallel with. Of those, the standing wheelchair is where we've made the most progress. We have ordered most of the parts for this project and are getting close to driving the motors. We've made some progress on the autonomous snowplow as well, and we have spent a good deal of time researching how to drive the motors for it. We have just started coding on it, so the progress has been slower.

## Semester Goals:

We would like to get most of the standing wheelchair completed so we can focus on the snowplow for the rest of the project term. At the very least we want to get the microcontroller and the dc brushless motors working on the wheelchair. With those main hurdles on the project out of the way, the rest should be simple to complete.

Motor control is the largest obstacle for us right now. We are continuing to research control methods that can safely handle the high currents that the motors will require. We are still running tests on the motor to acquire performance data that will help us better design the hardware. Currently we are waiting for some custom testing equipment that the mechanical engineering group is developing so we can get the data we need. We are also researching whether we will be needing different batteries so that we can get the current we require and a long enough run time for the snowplow.

To solve these problems, we need to take time to research some of the options we have for the controller. We have a promising solution to our controller problem on the wheelchair, and are looking at the ROBOTEQ brushless DC motor controller. Our main strategy to meet our goals will be to put in as many hours as we can. This way we can deal with any problems we come across as quickly as possible.